



Technology Evaluation for Environmental Risk Mitigation Principal Center

Bio-based Material's Characteristics and Evaluation

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Background

The Joint Group on Pollution Prevention (JG-PP) is fostering a number of efforts that address the increased use of bio-based products mandated by the regulatory, economic, and environmental landscape. Some of these regulations include Executive Orders (EOs) and the Farm Security and Rural Investment Act of 2002 (The Act). In recent years the price for petroleum has risen dramatically, which has contributed to a search for less expensive alternative products. The results of these efforts can then be applied to other related specifications and for other items from the list. The bio-diesel and bio-based metal working fluid projects are being led by the Navy while the bio-based hydraulic fluid project is being led by the Defense Logistics Agency.

EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management, and EO 13432, Cooperation Among Agencies in Protecting the Environment With Respect to Greenhouse Gas Emissions From Motor Vehicles, Nonroad Vehicles, and Nonroad Engines, require an annual incremental increase in bio-fuels use coupled with a decrease in use of petroleum-based fuels and are meant to reduce dependence on petroleum, particularly from foreign sources. The project also mitigates the risk to mission in which a viable fuel will be unavailable if the US Environmental Protection Agency (EPA) lifts the DoD exemption on diesel engine emissions. The Act requires all Federal agencies to develop affirmative procurement programs for purchasing products designated by the US Department of Agriculture (USDA). The USDA-designated list consists of products made with a threshold amount of bio-materials. The Act is meant to promote the usage of renewable sources and specifically targets petroleum as a material to reduce. Hydraulic fluids and other lubricants such as metal working fluids are included in the list and are used by many agencies in a wide range of applications such as for motors, ground equipment, and in machines.

Objective

To identify and validate bio-based products for use in ground equipment and machinery that reduce dependency on petroleum products, and reduce lifecycle costs while meeting or exceeding performance. Current efforts are focused on the following:

Demonstration of Bio-diesel for DoD Tactical Vehicles

JG-PP Project Number: 06-SP-032

Bio-based Hydraulic Fluids Working Group (WG)

JG-PP Project Number: 07-SP-033

Bio-based Metal Working Fluids

JG-PP Project Number: 08-SP-034

Period of Performance

- Not applicable at this time

Stakeholders

Army, Navy, Air Force, DLA, and NASA monitoring

Benefits

- Promote usage of bio-based materials
- Reduce petroleum dependency

Recent Progress

- Began Bio-diesel demonstration project - October 2008.
- Bio-based Hydraulic Fluid subject matter expert reviewed draft specification - October 2008.

Milestones

- Conducted information exchange with Bio-based Hydraulic Fluid subject matter expert – November 2008.

Near-Term Goals

- Resume monitoring project activity
- Distribute Joint Test Protocols to NASA POCs

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